STUDIES IN THE EUPATORIEAE (ASTERACEAE). XLVIII.

THE GENUS, CRITONIA.

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The genus name Critonia is one of the oldest in the tribe Eupatorieae being established by Patrick Browne in 1756 only three years after Linnaeus' Species Plantarum. Although the name has most often been placed in the synonymy of Eupatorium, it continues to call to mind for many synantherologists plants of distinctive habit with large open panicles, eglandular leaves and flowers, clustered heads and deciduous inner phyllaries. No accurate delimitation of the genus has ever been provided previously, but the various species that have been placed in the genus with few exceptions prove to be Critonias.

The limits of the genus prove to follow closely the general concept that has existed. The lack of glands on the leaves, achenes, and corollas distinguishes Critonia easily from the large related genus, Koanophyllon. Koanophyllon can also be distinguished by the less imbricate phyllaries, the often abrupt tips on the style branches and the shorter anther appendages usually wider than long. Another related genus, Fleischmanniopis has a distinctive carpopodium of very thick-walled cells, slender pappus setae, very short anther appendages, and abruptly enlarged tips on the style branches. Two West Indian species that we have placed in another genus, Urbananthus, differ from Critonia by glabrous achenes, stamens inserted near the base of the corolla, shorter anther appendages and more abrupt tips on the style branches. The Central American genus, Critoniadelphus has slender tipped pappus setae, glands on the backs of the corolla lobes and shorter anther appendages. Two exclusively South American genera also show some similarity to Critonia. Steyermarkina is clearly distinct by the dense pubescence inside the throat of the corolla. Symphyopappus has an inflorescence of irregularly erect-spreading branches and style branches that are more papillose. The many rows of imbricate phyllaries in Critonia resemble the condition in Chromolaena, but in addition to microscopic differences, the older plants of the latter group are distinct in loosing all the phyllaries. Some outer phyllaries always persist in Critonia. There are a number of South American Eupatorieae with heads clustered as in Critonia but all differ by their slender tipped pappus setae.

The limits and relationships of the genus are further clarified by studing the distribution of lactifers in the leaves.

These are present in the areoles of all species of Critonia and occur in their more reduced form in the related genus Urbanianthus. The lactifers are often difficult to observe in the species where they are small and next to the vein and for this reason make a poor key character, but in those species with slender bases on the achenes, the lactifers are usually large and easily seen in leaves moistened with water or aerosol solution. In Critonia stigmatica, the lactifers are extremely large and look like lenses in the center of each areole. These lactifers have been occasionally noted in the literature. Urban (1900) refers to the "punctis lineo-lisque pellucidis" in the leaves of Eupatorium dalea, and B.L.Robinson (1928) mentioned the "more finely pellucid-punctate leaves in Eupatorium heteroneuron".

In this treatment, we have made no subgeneric divisions in Critonia. Some rather well defined groups occur in the genus, however. Most evident is the typical element with very slender bases on the achenes, smaller carpopodia, and large lactifers in the leaves. Another large group includes the lianas such as C. billbergiana and coarse herbs and shrubs such as C. quadrangularis and C. morifolia with larger carpopodia and smaller lactifers. Two species have distinctive hastate leaves but each has so many distinctive features of its own that a simple subgeneric classification seems improper. Critonia peninsularis of Baja California has a distinctive oblong anther appendage with many thickenings in the cell walls. Critonia spiniciaefolia has unusually long pedicellate heads and the nodes of the inflorescence usually have numerous extra branches arising from the axils of the leaves sometimes forming a fan of up to seven branches a a node.

Critonia P.Browne, Civ. Nat. Hist. Jam. 490. 1756.

Wikstroemia C. Sprengel, Svensk. Vet. Akad. Handl. Stockh. 167. 1821. after May.

Coarse herbs to small trees or woody vines, sparingly branched. Leaves opposite, distinctly petioled, petioles sometimes winged, blades elliptical to broadly ovate (bases hastate in two species), without capitate glands, with distinct lactifers internally beside the veins or in the centers of the areoles. Inflorescence paniculate, branches opposite usually spreading at 90 degree angles. Heads usually sessile or short pedicellate in clusters of 3-12. Involucre of ca 20-25 imbricate, stramineous, usually glabrous, 2-3 striate phyllaries in 4-6 series; inner series elliptical to narrowly oblong, very easily deciduous, outer series very short orbicular, persistent. Receptacle plain to slightly convex, glabrous or with a few hairs. Flowers 4-12 per head; corollas tubular below and sometimes slightly

spreading above, glabrous; lobes 5, usually longer than wide with smooth elongate cells, cell walls usually slightly sinuous; anther filaments short, inserted above lower third of corolla; collars slender usually with distinct quadrate cells below, walls inornate or with slight but distinct annular thickenings; anther appendages large usually distinctly longer than wide. Style base without enlarged node, glabrous; appendage filiform to spathulate smooth to slightly mamillose. Achenes prismatic with 5 often very prominent ribs, ribs and surfaces sparcely to densely setose. Carpopodium a narrow rim or short cylindrical, cells small, quadrate to rounded with walls of confluent thickenings. Pappus of 30-35 scabrous, coarse, persistent setae with crowded bases, tips slightly enlarged and more closely serrulate, apical cells usually acute. Chromosome number X = 10 (Turner, Powell, and King, 1962).

Type species: Eupatorium dalea Linnaeus.

Our studies of the genus indicate that it contains the following thirty-two species.

Critonia aromatisans (A.P.Decandolle) R.M.King & H.Robinson, comb. nov. Eupatorium aromatisans A.P.Decandolle, Prodr. 5: 160. 1836. Cuba, Dominican Republic.

Critonia bartlettii (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium bartlettii B.L.Robinson, Contr. Gray Herb. 100: 11. 1932. British Honduras.

Critonia billbergiana (Beurl.) R.M.King & H.Robinson, comb. nov. Eupatorium billbergianum Beurl., Vet. Akad. Handl. Stockl. 1854: 134. 1856. British Honduras, Costa Rica, Guatemala.

Critonia campechensis (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium campechense B.L.Robinson, Proc. Amer. Acad. 43: 30. 1907. British Honduras, Mexico.

Critonia chrysocephala (Klatt) R.M.King & H.Robinson, comb. nov. Eupatorium chrysocephalum Klatt, Bot. Beibl. sur Leopoldina 1895: 2. 1895. Costa Rica.

Critonia conzattii (Greenm.) R.M.King & H.Robinson, comb. nov. Eupatorium conzattii Greenm., Proc. Amer. Acad. 34: 574. 1899. Mexico.

Critonia dalea (L.) A.P.Decandolle, Prodr. 5: 140. 1836. Eupatorium dalea L. Systema naturae Edition 10, 1204. 1758. Jamaica.

Critonia daleoides A.P.Decandolle, Prodr. 5: 141. 1836. British Honduras, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama.

Critonia eggersii (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium eggersii Hieron., Engl. Bot. Jahrb. 28: 566. 1901. Ecuador.

Critonia eriocarpa (B.L.Robinson & Greenm.) R.M.King & H.Robinson, comb. nov. Eupatorium eriocarpum B.L.Robinson & Greenm. Proc. Amer. Acad. 32: 42. 1896. Mexico.

Critonia hebebotrya A.P.Decandolle, Prodr. 5: 141. 1836. Costa Rica, El Salvador, Guatemala, Mexico.

Critonia hemipteropodia (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium hemipteropodium B.L.Robinson, Proc. Amer. Acad. 42: 39. 1906. Mexico.

Critonia heteroneura Ernst, Flora 57: 210. 1874. Colombia, Venezeula.

Critonia hospitalis (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium hospitale B.L.Robinson, Proc. Amer. Acad. 43: 32. 1907. British Honduras, Guatemala, Mexico.

Critonia imbricata Griseb., Mem. Amer. Acad. n.s. 8: 512. 1863. Cuba.

Critonia inaequidens (Urban) R.M.King & H.Robinson, comb. nov. Eupatorium inaequidens Urban, Symb. Antill. 1: 460. 1899. Dominican Republic, Haiti.

Critonia lanicaulis (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium lanicaule B.L.Robinson, Proc. Amer. Acad. 35: 336. 1900. Guatemala.

Critonia laurifolia (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium laurifolium B.L.Robinson, Proc. Bost. Soc. Nat. Hist. 31: 251. 1904. Costa Rica.

Critonia lozanoana (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium lozanoanum B.L.Robinson, Proc. Amer. Acad. 41: 275. 1905. Mexico.

Critonia macropoda A.P.Decandolle, Prodr. 5: 140. 1836. Trinidad.

Critonia morifolia (Miller) R.M.King & H.Robinson, comb. nov. Eupatorium morifolium Miller, Gard. Dict. Ed. 8. n 10. 1768. Argentina, Bolivia, British Honduras, Colombia, Costa Rica,

El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Paraguay, Brazil, Venezeula.

Critonia nicaraguensis (B.L.Robinson) R.M.King & H.Robinson, comb. nov. Eupatorium nicaraguense B.L.Robinson, Contr. Gray Herb. 61: 29. 1920. Nicaragua.

Critonia parviflora (Sw.) A.P.Decandolle, Prodr. 5: 140. 1836. Eupatorium parviflorum Sw., Prodr. Veg. Ind. Occ. 111. 1788. Jamaica.

Critonia peninsularis (Brandegee) R.M.King & H.Robinson, comb. nov. Eupatorium peninsulare Brandegee, Erythea 7: 4. 1899. Mexico.

Critonia portoricensis (Urban) Britton & P.Wilson, Sc. Surv. Porto Rico and Virgin Islands 6: 291. 1925. Eupatorium portoricense Urban, Symb. Antill. 1: 459. 1899. Puerto Rico.

Critonia pseudo-dalea A.P.Decandolle, Prodr. 5: 140. 1836. Cuba.

Critonia quadrangularis (A.P.Decandolle) R.M.King & H.Robinson, comb. nov. Eupatorium quadrangulare A.P.Decandolle, Prodr. 5: 153. 1836. El Salvador, Guatemala, Mexico, Nicaragua.

Critonia sexangularis (Klatt) R.M.King & H.Robinson, comb. nov. Piptocarpha sexangularis Klatt, Beibl. zum Leopoldina 1895: extr. 1. 1895. Costa Rica, Guatemala, Honduras, Nicaragua.

Critonia spinaciaefolia (A.P.Decandolle) R.M.King & H.Robinson, comb. nov. Bulbostylis spiniaefolia A.P.Decandolle, Prodr. 5: 139. 1836. Mexico.

Critonia stigmatica (Urban & Ekman) R.M.King & H.Robinson, comb. nov. Eupatorium stigmaticum Urban & Ekman, Arkiv. Bot. 23A, no. 11: 67. 1931. Haiti.

Critonia thyrsigera (Hieron.) R.M.King & H.Robinson, comb. nov. Eupatorium thyrsigerum Hieron. Bot. Jahrb. 28: 570. 1901. Colombia.

Critonia thyrsoidea (Moc. ex A.P.Decandolle) R.M.King & H. Robinson, Eupatorium thyrsoideum Moc. ex A.P.Decandolle, Prodr. 5: 150. 1836. Mexico, Nicaragua.

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